

Establishment of a New Genus on Two Japanese Crabs

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ABSTRACT—A new genus *Carpoporoides* was established on two Japanese crabs of the family Xanthidae, one of which is a new species, *C. distinctus*, found in refuges from the lobster net at Koza, the Kii Peninsula, Central Japan. The type species is *C. orientalis* (Sakai, 1935) which has ever been considered to be congeneric with *Carpoporus papulosus* Stimpson from the West Atlantic. The new genus differs from *Carpoporus* most remarkably in having the hepatic region gouged out to form a deep cavity which forms a larger cavity together with two cavities of carpus and palm of the cheliped.

INTRODUCTION

Several years ago, the junior author found a crab in refuges from the lobster net at Koza, southeastern place of the Kii Peninsula, Central Japan. Its appearance of the subpentagonal carapace with a dull color was not so conspicuous, but it was characteristic in having an ovoid deep cavity at each anterolateral part of the carapace. It was readily understood that the crab is related to, but apparently distinct from *Carpoporus orientalis* Sakai of the family Xanthidae.

The genus *Carpoporus* Stimpson is composed of only two species from the West Atlantic and West Pacific Oceans; the type species, *C. papulosus* Stimpson, 1871, ranging from North Carolina to Mexico, and *C. orientalis* Sakai, 1935, from Japan. In describing the specimen from the Kii Peninsula as a representative of a new species, we suspected that the West Atlantic and West Pacific species are not really congeneric with each other. Unfortunately, the additional specimens referable to the new species were not obtained in spite of the extensive research by diving and dredging, and also by examination of refuges at the adjacent regions, but the sole specimen at hand is fortunately a mature male of good size and enough to depict the specific and generic characters. The close comparison of the holotype of the new species and

some available specimens of *C. orientalis* with the literature about *C. papulosus* [1, 2] revealed that the establishment of a new genus to accommodate two Japanese species is reasonable.

MATERIAL EXAMINED

A male found in refuges from the lobster net set in a depth of 40–50 m; Koza, northeast of Kushimoto, the Kii Peninsula; Feb. 15, 1978. It is designated as the holotype and deposited at the National Science Museum, Tokyo (registered number NSMT-Cr 9163). Length and breadth of carapace are 10.6 and 14.3 mm, respectively. For comparative study, a young female (6.1 × 7.7 mm) infested by a bopyrid parasite from Kushimoto in the junior author's collection, and a female (8.2 × 10.8 mm) from Tomioka, Amakusa Islands, recorded by Miyake [3] and now preserved in the Zoological Laboratory, Faculty of Agriculture, Kyushu University (registered number ZLKU 9193), both of which have been identified with "*Carpoporus orientalis* Sakai," were examined at present.

SYSTEMATIC ACCOUNT

Genus *Carpoporoides* nov.

Diagnosis: Carapace subpentagonal in outline; gastric, cardiac and branchial regions distinct, but not sharply demarcated. Front projecting and

bilobed. Orbit almost complete, with a closed fissure on supraorbital margin. Antennule folded obliquely. Basal segment of antenna touched with ventral prolongation of supraorbital margin, filling orbital hiatus; flagellum small. Hepatic part behind external orbital angle deeply excavated. Inner distal part of carpus and inner proximal part of palm are also excavated and make a larger cavity together with the hepatic cavity, when the cheliped is tightly folded against the carapace. Male abdomen with five pieces, with third to fifth segments fused together. Male first pleopod weakly curved outward, bearing a bundle of some long, rather stiff hairs at its inner subterminal part behind the small beak.

Type species: Carpoporus orientalis Sakai, 1935.

Remarks: The new genus is differentiated from *Carpaporus* Stimpson by the different formation of cavity aside each anterolateral part of the carapace; in *Carpaporus* the anterolateral border of the carapace is quite entire, and thus a cavity is

merely formed by two cavities of the cheliped, while in the new genus the hepatic excavation of the carapace behind the external orbital angle is joined with two cavities of the cheliped to form a larger cavity.

The male first pleopod of the new genus is closer to those of the *Hypocolpus* species figured by Guinot-Dumortier [4] rather than to that of *Carpaporus papulosus* figured by Williams [2], having some long rather stiff, simple hairs at the subterminal part instead of many long, silky feathered hairs.

The type species, *Carpaporoides orientalis* (Sakai), is rather rare and endemic to Japanese waters, being known only from Sagami Bay, the vicinity of the Kii Peninsula, and the west of Kyushu, 80–120 m deep. It seems, however, unnecessary to re-describe it in the present paper except for the short notes and photographs for comparison with the new species, as the original author has repeatedly described and figured [5–8]. In the following lines the new species is to be

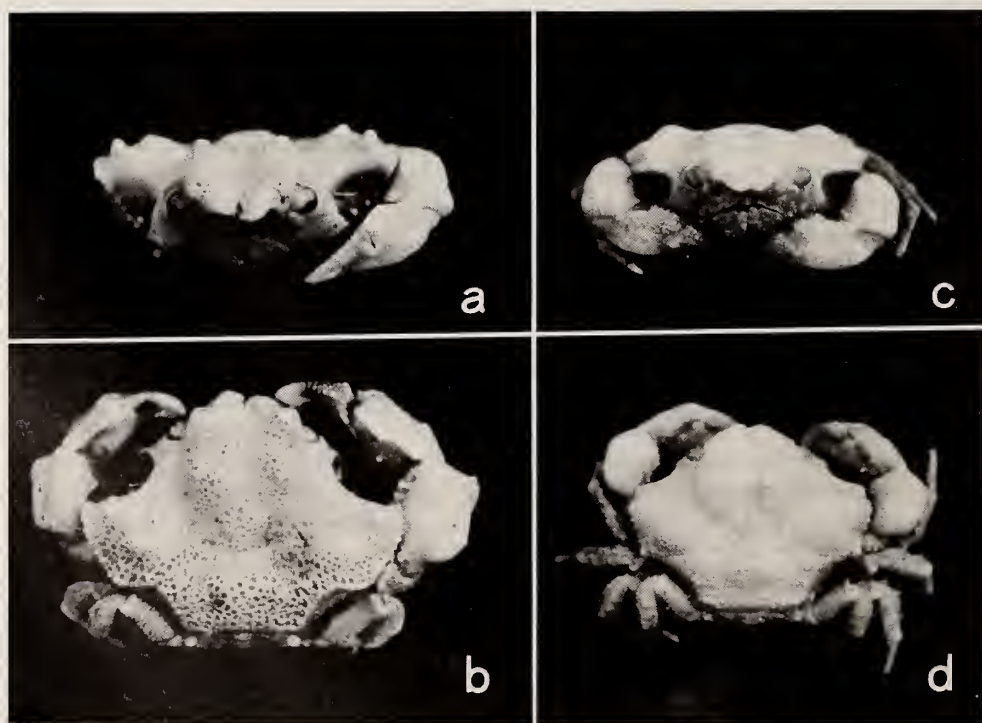


FIG. 1. a, b. *Carpaporoides distinctus* sp. nov., holotype, ♂ (NSMT-Cr 9163; 10.6×14.3 mm). c, d. *C. orientalis* (Sakai), ♀ (ZLKU 9193; 8.2×10.8 mm).

described as the second representative of the new genus.

Carpoporoides distinctus sp. nov.

(Fig. 1a, b)

Description: Carapace subpentagonal in its outline, with a deep cavity at each anterolateral part characteristic for the genus; dorsal surface uneven and rather flattened as a whole, being thickly covered with numerous small pits to form a reticulation; in reality, the reticulation consists of beads of minute pearly granules, that are visible only on high magnification and worn out to be smooth for most parts of gastric region; dorsal surface divided into regions and armed with eight tubercles arranged symmetrically, i.e., one on each supraorbital region, one on each protogastric subregion, and two on each branchial region; tubercles surmounted with clustered minute granules; supraorbital region thickened and separated from protogastric subregion by a wide depression; protogastric subregion occupied by a tubercle for its median part, being separated from anterior extension of mesogastric subregion by a small line which is not grooved; gastric region as a whole separated from branchial and cardiac regions by a wide and deep depression; cardiac region transversely elliptical and convex for and aft, being indistinctly delimited at each side from branchial region, but completely confluent posteriorly with flattened intestinal region; branchial region occupied by two tubercles for its most part.

Front developed so as to be rather triangular as a whole; in the holotype the right lobe is broken, so that the details of median indentation are obscure. Orbit small and completely occupied by stout eyestalk and cornea; eyestalk with several pearly granules along distal margin; inner part of supraorbital margin longitudinal or only slightly oblique, and almost entire except for possible trace of a closed fissure; external orbital angle not developed, being directly continuous with anterolateral margin of carapace. Main part of anterolateral margin of carapace deeply excavated to form a cavity; upper margin of the cavity is thick, but its anterior and lower margins thin and crested; its lower margin fringed with several granules, one or two of which are developed as outgrowths into

the cavity; bottom of the cavity is eroded and provided with some granules. Posterolateral margin of carapace behind the cavity is continuous with lower margin of the cavity, fairly strongly convergent posteriorly and fringed with a line of pearly granules, its anterior end being distinctly angulated in dorsal view; the line of pearly granules curved inward at the middle of margin of carapace behind the cavity, and then changes its direction to lateral end of posterior margin of carapace; thus, a small, rather concave facet is formed at each posterolateral part of carapace, and the fourth ambulatory legs are folded onto them.

Antennule folded obliquely under each frontal lobe. Antennal basal segment wide and oblique, its antero-inner angle truncated and widely touched with well developed prolongation of supraorbital margin; antennal flagellum feeble, arising from inner half of distal margin of basal segment. Third maxilliped thickly covered with truncated pearly granules and scattered setae; ischium oblong, its inner margin being fringed with prominent granules and short setae; merus about two-thirds as long as ischium with its distal margin oblique; exopod also granulated and rapidly narrowed distally, reaching just to antero-outer angle of merus.

In the holotype male the chelipeds are slightly unequal, the right being the larger, although the formation is almost identical with each other. Merus short and almost disguised under carapace; upper margin thin and beaded with conical granules of variable sizes, and outer subdistal part with a granulated ridge along distal margin. Carpus large, and its outer surface very uneven with minute pits, irregular reticulation and grooves; distal part of outer surface thickened; distal half of inner margin obliquely cut off, its surface being smoothly continuous with outer surface, and its distal margin being granulated. Outer surface of palm also uneven and thickly covered with minute granules, with about three rows of larger granules; upper margin of palm strongly crested and rather directed inward, its inner half being excavated together with proximal upper part of inner surface of palm; inner surface of palm granulated much sparsely than outer surface, but granules near the

excavation are larger. Fingers granulated on outer surfaces, pointed at tips, and meet throughout the whole lengths of fingers; some blunt teeth on cutting edges.

In the holotype the first two ambulatory legs are missing. Last two pairs comparatively short and thickly covered with pearly truncated granules on upper surfaces; granules variable in size, but those on posterior margins of merus and propodus are apparently larger; anterior margins of carpus and propodus fringed with several and some conical granules, respectively.

Thoracic sternum and abdomen thickly covered with truncated granules, being more or less eroded. Male abdomen with five pieces; third to fifth segments fused into one piece, with indication of vestigial segments by interruption of granules and lateral indentations. Male first pleopod with six long hairs at inner subterminal part behind short beak; subterminal outer surface thickly covered with conical teeth directed toward base.

Remarks: The new species is distinctly different from the type species of the genus, *Carpoporoides orientalis* (Sakai), most remarkably in the armature of the carapace. In *C. orientalis* the gastric, epibranchial and cardiac regions are protuberant, but not tuberculated at all (Fig. 1c, d). In addition, the hepatic cavity is apparently much smaller in the type species, so that the general contour of the carapace is different from each other.

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